MS (Multiple Sclerosis)

Health Education Facts

What is multiple sclerosis?

Multiple sclerosis is caused when the body's immune system attacks and damages the myelin sheaths that surround nerves, including the brain and spinal cord. This sheath or covering on nerves helps conduct nerve signals through the body and when it is attacked, nerve signals don't travel properly.

The demylenation, or removal of myelin, results in plaques, or scales. In fact, it is these plaques or sclera, that give the disease its name, *multiple sclera*.

There are several types of MS. In about 85 percent of patients, the disease alternately improves and worsens. The remaining 15 percent have a gradual onset and a slow but steady worsening of the disease.

What are the symptoms?

Symptoms of MS vary greatly. They may include tingling sensations; numbness; slurred speech; dizziness; blurred or double vision; muscle weakness; poor coordination; tremors; unusual fatigue; muscle tightness or spasticity; problems with bladder, bowel, or sexual function; and paralysis. The legs are particularly vulnerable to paralysis because the nerve signals have to travel longer distances from the brain.

Difficulty coordinating hand-eye movements, or *dysmetria*, is common. Walking can be difficult, and there may be mental changes such as forgetfulness or confusion and, rarely, seizures. One of the most troubling symptoms is a general fatigue. These symptoms may occur in combinations, come and go, and vary from mild to very severe.

How common is MS?

MS is known as a young adult's disease. It is the most common disabling neurologic disorder of young adults; at least 350,000 Americans have MS, and women are affected twice as much as men. The average age for the onset of MS is 30, and it usually starts between 15 and 50.

In the U.S. MS is found in about one to three per thousand people. In other parts of the world, the incidence differs; in Canada and northern Europe **S** especially Scandinavia and Scotland **S** there is a high incidence of MS. One out of 100 people of northern European extraction are likely to contract it. MS is rare in Asia and Africa.

Like other autoimmune diseases such as rheumatoid arthritis, lupus, and Grave's disease MS is twice as likely to occur in a woman than in a man.

Is MS hereditary?

MS is not a hereditary disease in the same sense as hemophilia, sickle-cell anemia, and Huntington's disease; however the susceptibility to develop MS is inherited. A child or sibling of someone with MS is about 10 times more likely to contract the disease.

What causes multiple sclerosis?

The cause of MS is still unknown. Although it would appear infection is involved in MS, no virus has been conclusively linked to MS.

Are there different kinds of MS?

MS runs varying courses in different people. At one extreme, a person can have one or two exacerbations with complete recovery and no further symptoms. On the other end is a rapid decline to total disability. There are three general patterns:

In **relapsing-remitting** (or exacerbating-remitting) MS, the person experiences exacerbations, that is, periods during which symptoms and disability become markedly worse for a period ranging from days to months. This is followed by improvement of function, although the person might be somewhat worse than before the relapse. A period of remission may last weeks, months, or years with minimal symptoms.

In **chronic-progressive**, there do not seem to be any remission periods; the person's disability and symptoms become progressively worse.

Some people consider **secondary-progressive** a third form. In this, a person appears to have relapsing- remitting MS at the beginning of the disease, but there is less recovery from exacerbations each time, and the course merges into a chronic form.

What are exacerbations?

An exacerbation is a rapid onset attack of increasing symptoms that is thought to indicate a new immune attack on myelin. It is a rapid, progressive worsening of symptoms lasting at least a day in a particular area that has not had any new symptoms within the past month.

Exacerbations may occur for many reasons or no recognizable cause, but some general circumstances can be identified. Often, a highly stressful time at home or work, especially if it lasts

continued on reverse

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for an extended period, will bring on an exacerbation. This stress may be emotional as well as physical. It is widely recommended that people with MS reduce the stress level in their daily lives for this reason.

Other factors that seem to bring on exacerbations are excessive fatigue over a long period of time or continued sleep deprivation. Overexertion and overheating cause short-term problems, but can also cause an exacerbation especially when they are combined with one of the other risk factors.

Illnesses such as the flu are also considered to be a large precipitating factor. The raised temperature from the fever can be bad, but also the stress of having an illness and fighting it off often can cause an exacerbation. Some physicians recommend the flu vaccine for patients with MS specifically to avoid this problem.

An untreated exacerbation can last from weeks to months, and the recovery is usually slow. In many people, treatment with anti-inflammatory steroids shortens the exacerbation; however, overuse of steroids will decrease their effectiveness. Even after most of the symptoms of an exacerbation have resolved, some effects may be noticed for a long time. After two years or so, any remaining impairment from an exacerbation probably will not improve.

What is the course of MS over time?

Most neurologists subscribe to the "five year rule," a rule of thumb **S** the most reliable predictor of someone's future course is how much disability and how many exacerbations they have in the first five years. The long-term course is so variable among people that it is impossible to make a blanket statement; one person may have one episode and remain symptom-free for the rest of his life, while another person may rapidly become wheelchair bound.

How is MS diagnosed?

Sometimes diagnosis is long and frustrating because the symptoms appear then lessen. Diagnosis is based on a history of symptoms and laboratory tests, after ruling out such causes as Lyme disease or a central nervous system infection.

Laboratory tools include magnetic resonance imaging (MRI), which allows doctors to see areas of the brain that are sites of demyelinating attacks. Another test analyzes the spinal fluid. Another measures nerve conduction speed.

How is MS treated?

MS is currently incurable, but there are treatments that relieve or prevent symptoms, although they can't repair the demyelination. Examples of treatment are medications for spasticity, drugs for bladder incontinence and urinary tract infections, medications for pain, and rehabilitation to improve function.

There is currently a lot of research to find new treatments. Some of these, such as immunosuppressive agents and lymphoid irradiation, are designed to slow or halt progression of the disease.

A new class of drugs may temporarily reverse symptoms by promoting efficient electrical conduction through affected nerves. These include steroids, that reduce inflammation during exacerbations. Beta-interferon was approved by the FDA in 1993 to treat exacerbating-remitting MS. Biogen has been found to slow the rate of progression of disability in relapsing-remitting patients and reduce frequency of exacerbations by about a third. Another class of immunosuppressants usually is only used for chronic-progressive patients because of the strong side effects.

What does Lyme disease have to do with MS?

Lyme disease is a disease caused by a bacterium transmitted by the bite of a tick. If left untreated, in its later stages it can cause symptoms similar to MS. It even causes MS-like plaques to show up in MRI scans. For this reason, a test for the absence of Lyme antibodies is now a standard diagnostic test for confirming a diagnosis of MS.

Where can I get more information?

The National MS Society has pamphlets and publishes a newsletter four times a year. In Kansas, there are MS clinics at the University of Kansas Medical Center in Kansas City (913-588-6970) and the Veterans Affairs Hospital in Topeka (785-272-3111).

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